

Serial No. 09/726,142

REMARKS

This amendment is responsive to the official action dated March 14, 2003.

Claims 9 and 10 were pending in the application. Claims 9 and 10 were rejected.

No claims were allowed by the Examiner.

By way of this amendment, Claims 9 and 10 have been amended.

Accordingly, Claims 9 and 10 are currently pending.

I. **REJECTION OF CLAIMS UNDER 35 USC 112**

Claims 9 and 10 were rejected under 35 USC 112, first paragraph, as containing subject matter that was not described in the specification sufficiently to reasonably enable the invention. Specifically, the Examiner stated that with respect to Claim 10, the claims provide for a two-step coating process to provide both a metallic coating and an EMI reflective coating and that the specification does not support these process steps. The Applicant has amended Claim 10 so that it is clear and in line with the disclosure in the specification, whereby a single coating step provides one coating that is both metallic and EMI reflective.

With respect to Claim 9, the Examiner stated that the claim introduces a phrase that allows additional potential for shaping the part after the injection molding step in contradiction to the process provided for in the specification. The Applicant has amended Claim 9 to clearly claim that the part includes a contact surface for contact with a heat-generating object and that the contact surface is formed during the injection molding step.

In view of the amendments to Claims 9 and 10, the Applicant asserts that the claims are now fully enabled by the subject matter disclosed in the specification. Further, the Applicant asserts that all of the limitations of the claims are now in harmony with and fully disclosed within the specification. Therefore, withdrawal of this rejection is respectfully requested.

Serial No. 09/726,142

II. REJECTION OF CLAIMS UNDER 35 USC 103

The Examiner rejected Claims 9 and 10 under 35 USC §103 (a) as being obvious and unpatentable over the combination of JP407106784A in view of US Patent 6,200,630 (Eriksson). The Examiner stated that JP407106784A teaches a process including the steps of providing a base thermoplastic polymer matrix, mixing a thermally conductive filler into said base matrix, injection molding the mixture into a net-shape molded configuration having a contact surface and installing a metallic plate over the part to shield against EM radiation. The Examiner further states that while JP407106784A does not disclose applying a metallic coating, Ericksson discloses applying a metallic coating via a screen or tampon printing method and that it would have been obvious to one skilled in the art to replace the metallic plate of JP407106784A with the printed metallic coating of Ericksson to arrive at the present invention.

The Applicant asserts however that the configuration shown in JP407106784A is exactly the type of assembly that the present invention was developed to overcome. The device in JP407106784A includes an electromagnetic interference shielding plate that is placed between the heat generating device and the heat dissipation assembly to prevent the transmission of EMI and RF waves therebetween. By installing this plate in this configuration, the assembly introduces an air gap that causes severe reduction in the thermal conductivity of the heat dissipation device and reduced performance in the overall assembly. This is a limitation found in the prior art that the present invention is specifically directed to overcome. Specifically, the present invention provides a thermally conductive polymer part that includes a metallic coating applied directly to its outer surface to eliminate the air gaps and resultant transfer losses of the prior art.

The disclosure provided in Ericsson describes a part that has an applied metallic foil layer. This application is virtually indistinguishable from the metal shield provided in JP407106784A. Specifically, the Ericksson disclosure provides for the metallic shield disclosed in JP407106784A to be applied over the part utilizing tampon printing. A metallic foil is placed over the part and pressure is applied to cause the foil to conform to

Serial No. 09/726,142

the contours of the part geometry. While this application technique is a marginal improvement over the disclosure in JP407106784A in that the size of the air gap is reduced, the transfer gap still exists. The present invention provides for a metallic coating to be plated onto the outer surface of the thermally conductive polymer part to eliminate the air gap and thereby eliminate the inherent loss of thermal conductivity associated with the prior art devices.

The art cited by the Examiner simply cannot be combined to arrive at the present invention. By combining the disclosure in JP407106784A with Eriksson, one skilled in the art would arrive at an injection molded thermally conductive polymer thermal transfer part that includes an applied layer of foil that is not in intimate contact with the part geometry. While the Eriksson disclosure would provide an improvement in the overall performance of the part as compared to the large air gap found in JP407106784A, the method still results in an air gap. This air gap results because regardless of how smooth the molded surface of the base part is, microscopic surface imperfections and mold irregularities exist on the surface of the part. When a foil is applied and tampon or screen-printed as disclosed in Eriksson, while the foil conforms to the overall geometry of the part, it does not conform to fill all of the smaller voids and irregularities in the surface of the part. The present invention, by utilizing a plating process for applying the metallic coating, includes a metallic coating that is in intimate contact with the thermally conductive polymer core thereby eliminating the air gap and the associated thermal transfer losses.

Since it is clear that the prior art references cited by the Examiner are not combinable to arrive at the claims of the present invention as amended, the combination of JP407106784A and Eriksson cannot render the present invention obvious. Clearly while Eriksson improves upon the disclosure in JP407106784A, the combination still includes flaws that are overcome by the present invention. Since there is no teaching in either of the cited references alone or in combination that render the present invention obvious the Applicant asserts that this rejection is inapplicable and respectfully requests withdrawal of this grounds for rejection.

Serial No. 09/726,142

MAY 13 2003
RECEIVED

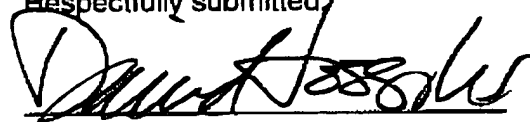
III. CONCLUSION

Accordingly, claims 9 and 10 are believed to be in condition for allowance and the application ready for issue.

Corresponding action is respectfully solicited.

PTO is authorized to charge any additional fees incurred as a result of the filing hereof or credit any overpayment to our account #02-0900.

Respectfully submitted,



David R. Josephs, Esq.
Reg. No. 34,632

BARLOW, JOSEPHS & HOLMES, Ltd.
101 Dyer Street, 5th Floor
Providence, RI 02903
(401) 273-4446 (tel)
(401) 273-4447 (fax)
drj@barjos.com